STANDARDIZING THE DOLLAR—DISCUSSION

NAT. C. MURRAY: Whatever be the cause or causes of the advancing level of prices, or increasing money cost of living since 1896, it can not properly be attributed to any lessening of the output of agriculture, per capita of total population. This statement is prompted by the assertion, sometimes made in discussions of this subject, that production of agricultural products has not kept pace with the increase of population and that this is a sufficient explanation of the rise of prices, or at least an important factor.

As prices have been advancing in practically every important civilized country, the subject of supplies may be considered from a "world" standpoint. The population of the civilized world, excluding China, has been increasing at the rate of slightly more than 1 per cent a year, perhaps about 1.1 to 1.3 per cent. Therefore world production need increase only 1.3 per cent yearly to keep pace with increasing population. A study of statistics of world crop production shows that such production during the past fifteen years of rising prices has been increasing much faster than 1.3 per cent a year. Wheat, corn, oats, and barley have each increased, on the average, more than 2 per cent yearly since 1896, that is, since the beginning of the recent general rise of prices; rye has increased about ½ of 1 per cent yearly. During the five-year period 1895-1899, the world production of these five staple cereals was 533 billion pounds per year; in the next five years (1900-1904) they averaged 594 billion pounds, an increase of 11 per cent, and in the next five years (1905-1909) they averaged 666 billion pounds, an increase of 12 per cent during the five-year period; this is an increase of production of 25 per cent in ten years, that is, from the first to the last period, which compares with a population increase of about 12 or 13 per cent. The rice crop so far as can be learned has been increasing more than 1.3 per cent per year. Potato production has been increasing nearly 3 per cent yearly (from 4.5 billion bushels yearly during 1900-1904 to nearly 5.2 billion bushels yearly during 1905-1909). Sugar production has been increasing nearly 4 per cent yearly (26.2 billion pounds yearly average in 1900-1904 and 31.7 billion pounds yearly during 1905-1909). Cotton production has been increasing at the rate of about 2 per cent yearly (17,487,000 bales yearly average 1900-1904, and 19,729,000 bales yearly

average during 1905-1909). Other crops could be named the production of which has been increasing faster than population. But those already named form the bulk of crop production, are representative, and sufficiently indicate that the per capita production of crops, and consequently consumption, has not been diminishing during the recent period of rising prices; but rather that, coincident with the recent world-wide advancing level of prices, world crop production has been increasing faster than population.

It is more difficult to determine the production of animal products than of field crops, but such evidence as is available indicates that world supplies of animal products have been increasing perhaps not so rapidly as cultivated crops, but as rapidly probably as is population. Twenty-six countries outside of the United States, including nearly all of Europe and the important live stock countries of Argentina and Australia, in an interval of about ten years, that is from an average date of about 1899 to an average date of about 1909, increased their supply of cattle 13 per cent, of sheep 7 per cent, and of hogs 11 per cent. It should be kept in mind, in considering numbers of live stock in connection with questions of consumption, that the products of live stock, such as milk, wool, and beef, tend in recent years to increase faster than the number of stock kept on hand. Hogs and cattle are fattened more rapidly and marketed at a younger age than formerly; the average cow of 1910 gives more milk than the average cow of 1900 or 1890; the average production of wool per sheep during the past ten years in the United States was about 16 per cent more than in the preceding decade; therefore production of animal products is greater, in proportion to the number of animals counted, than formerly. It would seem, therefore, from the figures given, that the supply of animal products, as well as crop production, has kept pace with population during the past decade of rising prices.

Referring now to crop production in the United States, it may be observed that the production per capita of total population, although varying from year to year, has not shown any decided trend, either to increase or decrease, during the past fifteen years, but there has been a decided shrinkage in the proportion of product exported, and some increase in the quantity of agricultural products imported. Manufactured food products of the United States increased about 23 per cent from 1899 to 1909

(which compares with a population increase of about 21 per cent). That is, if the same values were applied to the census figures of production in 1909 that were given in the census of 1899, an increase of total value of 23 per cent would be shown, due to that much increase in production. Similarly, the exports of such manufactured products declined in quantity 55 per cent from 1900 to 1910. Deducting exports, it appears that approximately 35 per cent greater quantity of food products was manufactured and consumed in the United States in 1909 to 1910 than in 1899 to 1910. The total decline in exports of agricultural products from the United States from 1900 to 1910 was about 37 per cent. Imports of agricultural products from 1900 to 1910 increased about 47 per cent. So that, as a net result of the movement of production, exports and imports, the quantities remaining in the United States for consumption have increased decidedly, in per capita of total population, coincident with the advances in prices.

Representing 100 as the index figure of per capita production of ten representative crops in the United States in the forty-five year period 1866-1910, the per capita production in the five years of depressed prices, 1892-1896, was 100, for which time the index figure of prices to farmers for the same articles was 76, whereas during the past five years the index figure of production is 109 and the index figure of prices 120. That is, per capita production increased 9 per cent while prices increased 58 per cent. It is thus seen that coincident with an advance of prices there has been an increase of production as well as consumption of agricultural production per capita of total production. It is interesting to observe that crop production, per capita of total population in the United States, is greater this year, 1912, than ever before recorded. The people as a whole have probably been better clothed and fed, in the past few years of rising prices, than ever before.

ALBERT C. WHITAKER: In discussing Professor Fisher's proposal, I may say I adopt without qualification the whole body of general monetary theory from which the scheme has sprung. I have observed that at one place in his paper Professor Fisher has followed the instincts of a good propagandist and has invited even those who repudiate the quantity theory to join with him in support of the adjustable seigniorage plan. The argument which

Professor Fisher makes to these gentlemen to show that they can, consistently with their own theories of the value of money, uphold his remedy, seems to me wholly logical even when viewed from their standpoint. But I for one should be much surprised if any but adherents of the quantity theory should ever be found in support of this scheme. It is clear the author of the plan himself conceives it simply as one which will provide for an approximate stability in the purchasing power of the money unit *merely by way of and through its effects upon the quantity of standard coin in circulation.* As propagandists we should be glad to withdraw all emphasis from the point that the *quantity of standard coin* is a factor standing intermediate between changes in seigniorage as cause and changes in prices as effects of this cause. But as critics—even as favorable critics—in my judgment we must on the contrary insist upon this very point. As a cheerful follower I accept, I think *in toto,* Professor Fisher's analysis of the relation subsisting between the quantity of so-called "primary" money and the general level of prices, and likewise his theory of the relation of the interest rate to the oscillations of prices. But the chief criticism of his plan that I have to offer, whether it be of vital importance or not, is intimately connected with the proposition that the sole way in which a change of seigniorage can affect prices is through its effect upon the quantity of standard coin, and *thus* on other forms of money, and upon bank deposits. In general I want to say I think the plan is wholly sound in principle, but I do not at all follow Professor Fisher in his assumption that the *amount* of change of seigniorage required to correct a *given* change in the price level can be clerically or ministerially determined, or even approximately so determined. Still I think the plan thoroughly workable if only men and their governments were good enough to work it. With regard to a distinct matter—the political feasibility of the scheme—I regret to say I believe it is totally lacking in political feasibility. This, of course, is not Professor Fisher's fault. I do not believe those who need to see it to make it go will ever see it. Upon this point, however, I shall not expand.

Professor Fisher appears to attach considerable importance to that feature of his proposal which provides for the determination of the amount of seigniorage change required in a given instance, as a mere clerical or ministerial act. It is, of course, undesirable that any political authority should have a *discretionary* control over the amount of seigniorage change to be made. Too many

evil possibilities are suggested by such a control. Therefore Professor Fisher recommends that a 1 per cent rise in the price level should be taken as a mere administrative mandate that the seigniorage charge should be elevated 1 per cent. In discussing what he terms, most aptly, the repercussion upon the value of gold bullion following from a change of seigniorage, Professor Fisher admits, or rather, points out, that a 1 per cent change in seigniorage can hardly be counted upon as the exactly correct antidote for a 1 per cent shift of the price level. But he does not make a great deal of this point, and does not appear to regard it in any sense as a sufficient reason for abandoning the ministerial character of the seigniorage regulation. It is in this connection that I desire to submit my chief criticism. I myself cannot see that there is any way of telling whether a 5 per cent rise, say, of the price level should require a 5, 10, or 15 per cent increase of seigniorage as a correction. A mere 5 per cent increase of the seigniorage, I should think, might prove of so little avail quantitatively that if we were to confine ourselves to such a change, that is, one merely equal to the change in prices, the whole scheme would hardly be worth the trouble it involves. To take a strong case for the sake of argument: suppose prices in an isolated country rise 25 per cent. We raise the seigniorage say 25 per cent. What events follow? (1) First the government's buying price for *fine gold bullion*—known now as the mint price of gold—falls to $16.536 per ounce. With the proposed 1 per cent "brassage" charge, the government's selling price would then stand at $16.70, and the *market price* of gold bullion would necessarily fall to a point somewhere within these margins. (2) The money cost of production of the products of gold, such as rings, watch-cases, chains, dental gold, etc., and the market price of these products, would fall. (3) The sales and output of these things would expand—to an unknown degree. (4) More gold would therefore go to the manufacturing arts uses, and less to make coin. The quantity of gold used in the arts would necessarily expand until the social demand price falls to $16.53 per ounce (I must be brief and therefore must use some of our technical terms). Will this deflection of gold from the monetary use be just sufficient, or even *approximately* sufficient, to raise the purchasing power of the money unit by 25 per cent? There is no means of telling. If the quantity of gold required to drive the social demand price of arts bullion down to $16.53 per ounce is very large, a very large amount of

gold will be deflected from the monetary use, and a very large *relative* reduction in the number of dollars will be occasioned. Then a comparatively great effect on the value of the money unit or prices may be expected. If the quantity referred to is small, a comparatively small effect upon prices may be looked for. To summarize: the extent to which a given change of seigniorage will affect the general price level depends upon the elasticity of the demand for the gold bullion as commodity, the elasticity of the demand for gold as money, and also the existing proportion between the arts fund and the coinage fund, and finally upon the effect in the fall of the value of gold—as disturbed by the readjustment between the arts and money uses ensuing from the seigniorage change—upon its production. Raise the seigniorage charge enough to cut the price of gold—namely the number of money units per ounce for which it exchanges—in half. This might increase the arts use of gold by 60 per cent. Who knows? On the assumption that the existing quantity of gold devoted to the money use is twice that devoted to the arts use, this would in time reduce the quantity of coin by 30 per cent of itself. This ought, *ceteris paribus*, to raise prices about 30 per cent according to Professor Fisher. But even granting this, it is apparent that the amount of effect of a given change in seigniorage is dependent upon the elasticity of the demand for the commodity gold. This, without saying anything as to the reaction of the whole on gold production. I may be wrong, but I think the assumed substantial proportionality between seigniorage change and consequent price level change (or correction), would be likely to prove so far away from what we should actually experience as to suggest strongly the abandonment of the ministerial or clerical determination of the seigniorage. Changes in the price level could be followed up and corrected, I think, only by seigniorage changes to be found experimentally. If sound, this is not necessarily a vital criticism of the plan as proposed. But it would certainly reflect to a degree upon its political expediency. I believe we should have to choose between a ministerially determined but very inadequate correction, and a substantially adequate correction determined upon by a commission allowed a certain latitude of judgment.

A few more observations: Professor Fisher has anticipated the difficulty of speculation in gold bullion under the plan when in operation, and has met that difficulty as well as it can be met. I should suggest that the brassage charge be made perhaps 2 per

cent, to allow a greater latitude in seigniorage changes. This would entail the evil that the range of fluctuation of our rates of exchange—even while the seigniorage charge remains unchanged—would be widened considerably.

Professor Fisher has suggested that the plan might be put in operation in the form of an extension of the system of the gold exchange standard. He supposes that Austria might make its home money stable—in purchasing power—by a variable seigniorage, while other countries might maintain their own money units in a fixed value relation with the Austrian unit by the new established devices of the gold-exchange system. Why not make it Switzerland, or the republic of Andorra? Is not this a little too enthusiastic? A sufficient pumping plant might maintain a constant pressure in the water mains of a given city, by keeping the water in a standpipe at a given elevation, say 200 feet. This would be quite as feasible with a standpipe 25 feet in diameter as with one 50 feet in diameter. But it could not be done with a 6-inch standpipe. The commerce of the great nation with too small a country would not have the capacity, if I may so express it, to carry the exchange operations involved in the plan as an extension of the gold exchange standard. No one could be more competent to discuss and weigh this factor of the size of the chosen central country than Professor Fisher, but just because it might plague him I want to point out that he has enthusiastically neglected it in his *Purchasing Power of Money*. But apart from this less serious matter, it appears to me the only method to be recommended for putting Professor Fisher's general plan for an adjustable seigniorage into effect, would be to have an international agreement between the leading nations providing for equal and simultaneous alterations of the seigniorage charge in all, determined upon the basis of a world's index number. For one country to go it alone would give it a standard of deferred payments superior to that of the others, but would tremendously increase the fluctuations of its exchange rates over long periods of time. Whether the good would outweigh the evil, would require at least another ten minutes to discuss.

WILLARD C. FISHER: The subject announced for discussion this afternoon is an important one, so important, indeed, that I am unwilling to see the session close without more reference to it. Of course, the subject broached by the principal speaker and dis-

cussed by those who have followed him is also important. In point of scientific interest, and perhaps in practical importance too, it approximates the announced subject. Certainly it deserves all the attention which these able men have given to it; and certainly I have no prejudice against it as a theme for our consideration.

But the mere fact that the rising cost of living, a topic of absorbing scientific and practical interest in itself, was announced for discussion this afternoon warrants me in turning your attention to it for a part of the brief time allotted me. I will even go so far as to say that, with a full appreciation of all that may be said about stabilized dollars, I still regret that this session could not have been given to the other subject as announced, the rising cost of living. I am sure that a free discussion among us here would have done much to clear away confusion, even from the minds of trained economists.

For it has seemed to me that sometimes even we have allowed ourselves to be influenced too much by the careless thought and speech of the man in the street. This, it is said, is a time or condition of rising prices and increasing costs of living. And sometimes we appear to set about explanations and remedies as if the problem were fairly before us in brief general terms of rising prices and increasing costs. Yet not in either or in both of these phrases is the problem stated with quite all helpful precision and fullness.

It is not likely that such men as gather in these meetings cover any real confusion of thought under the term, rising prices. We usually are clear enough in our understanding of a rise of general prices, as these are shown in some of the recognized tabular computations.

But as to cost of living, do we not at times slip into the "practical man's" position and allow ourselves to think of the present rising cost as general, as a hardship weighing upon all classes? Careful observation shows us that it is not so; and sound reasoning proves that it could not be so.

But even if we keep our thoughts of rising and increasing costs of living alike free from error and vagueness, we may still miss clues through failure to note all sides of the present economic situation, of which rising prices and increasing costs of living are but parts, albeit very important parts.

Let me indicate, then, the essential features of the economic

situation which the world is trying to understand, at least the features as I see them and as I believe that a free discussion here would have given them something like authoritative recognition.

After a long period, twenty years or more, of falling prices, the world at large has now for some sixteen years seen a persistent rise of general prices, broken to be sure a few times by brief falls, but not yet showing any serious evidence of coming to an end. Not all prices have risen. Some, especially among manufactured goods, have even fallen. Some have risen not at all, or only a little. Others, particularly those on raw products of the farm and forest, have risen a great deal, even doubling. Among securities, bonds, both public and private, of a given intrinsic goodness, have fallen. Reputable stocks have tended generally to rise.

Productive industry generally has enjoyed a very notable prosperity. While the services rendered by most classes of employees are more highly rewarded than they were, most contractual incomes have risen less than the average of goods. Wages have lagged behind goods the least, salaries the most. Independent incomes, on the other hand, have risen much, and in great numbers of cases, especially in the higher reaches, have more than matched the average rise of prices, whether of goods or of services. The prosperity of independent businesses has been so strong that a financial shock as severe as the crisis of 1907 had only the effect of a temporary retardation.

While such changes of prices and incomes have meant a well-nigh universal increase in the formal or money costs of living, the increase has been of vastly different significance for different classes. The great body of working people, salaried and on wages, have found their incomes rising less than the average, while their larger objects of expenditure, foods chief among these, have risen more than the average. These very numerous classes, then, have experienced great hardships. Some few, likely, have neither gained nor lost. Beyond these are numbers, quite large and very conspicuous and influential, by way of example and otherwise, whose incomes have outstripped far the rise in general prices. These, accordingly, have been able to enrich their living, here and there, all the way up to the greatest heights of luxury and extravagance.

If such be a fair, although hurried and rough, account of the economic conditions which face us, it is clear enough that many of the explanations, including some which have been considered

gravely in former meetings of this Association, are not at all acceptable. For in order to be acceptable as explanation, a force must not only be naturally fit to produce the result or condition to be explained, but also be present in appropriate times and magnitudes.

The minority of the recent senatorial committee of investigation make much of tariffs and monopolies as causes; and we democrats must blush for their lack of insight. Not the mere existence of tariffs, low or high, can account for changing prices, but only changing tariffs; and a long-continued rise of prices in America and in the world at large could be explained only by repeated elevations of duties in our country and over the world. And such elevations, of course, there have not been. It is worth noting also in passing that, in this country at least, imported commodities show about the smallest rise in price.

And it is much the same with monopoly. There is no correspondence in time between the spread of monopoly and the rise of general prices; far from it. Nor is there better correspondence between monopolized goods and those rising most in price. Few things have risen more than the raw products of the farm; few have risen less than refined oil and sugar.

But for tariffs and monopoly, as also for many other influences, an established alibi is not the only defense. Doubtless tariffs and monopolies do affect the prices of the particular goods taxed and monopolized; but they can have no effect whatever, as tariffs and monopoly, upon general prices. Whatever amount the purchaser must pay the more for certain goods because of the duty or the exactions of the monopoly, that same amount he has the less with which to demand other goods. No; not monopoly, nor tariffs, nor any other like special influence can raise general prices, at least not until you can take more from a man and leave him no less, or until two men can mount into the sky by rising alternately one above the other on a seesaw.

Extravagance, too, must be rejected, and for similar reasons—and for others. Extravagance there is, to be sure, in American life, greater extravagance than ever before; and its appearance and spread do correspond pretty well with the period of rising prices. But it appears, where it does appear, more as a result of rising prices and related movements than as a cause. And it does not appear in the lives of the millions who find it ever harder and harder to make the two ends meet, even while they deny

themselves staple comforts; although it does doubtless appear in the increasing importations of diamonds and like high luxuries. Nor does its effects appear widely in prices, when the great staples of common use rise most and luxuries rise much less, when corn meal and rye flour rise more than wheat flour and when pickled side pork rises more than steaks and roasts of beef. If a man cannot otherwise be persuaded that he is not lifting himself by his boot straps, he should at least heed the fact that the straps are not pulled taut.

And much the same it is with numbers of other causes or explanations of the rise of prices, numbers so great that I cannot take time even to mention them. One after another they fail, at one point or another. Some cannot be traced at the proper time; some cannot be traced in the proper fields of industry; some are purely local; some would reverse true relations, coming up as causes when they really are results of rising prices; many fail for the mortal defect of being only special in their bearing and having no power over general prices.

There is, however, one force which is adequate to produce the world's present industrial condition. I mean the world's greater and ever increasing supply of gold. This began and it continues at the right times and in the right amounts. It is world-wide in the natural reach of its influence; and it works naturally upon all classes of goods and other values.

I do not suppose that nothing needs to be said but the one word, gold, and that by this one magic term all difficulties are dissolved at once. Indeed, the term itself is elliptical: it is intended to suggest the various media of exchange of the modern world, which have been analyzed so well by Professor Fisher, and which depend directly or indirectly upon gold. But I do mean to say that, with this interpretation of terms, there is nothing in the present industrial situation, either as I have sketched it or as it might be described in more careful and fuller detail, which is in conflict with the theory of a paramount influence of gold in bringing about the present rise of prices. Indeed, I would even say that the present situation is just what orthodox economics has taught us to expect under such an influence.

Time does not remain for me to say much in criticism of the paper of Professor Fisher. Some of those who have preceded me have not been quite correct in their understanding of his proposals and quite fair, therefore, in their criticisms. But I shall leave it

to him to answer these. And my own comment must be limited to a brief suggestion of two or three points.

In the first place, the plan is not to be considered except upon the basis of an international agreement, and this would be very difficult to establish and maintain. It would not do for any one nation to adopt thus a distinct monetary standard and system. Whatever domestic advantages might flow from the more stable standard would have to be weighed against the very serious disadvantages of a broken or lost par of international exchange and the consequent disturbance of all international trade. Upon this I need not enlarge at all; for we are here upon a ground that is entirely familiar to us all.

This necessity for an international acceptance of the proposed scheme would increase materially the difficulties of establishing and continuing the policy; but very real difficulties there would be even within one nation. It has seemed to us all a very simple matter to draw up a table with which to show the movements of general prices and of the value of money. But this is because, as it were, we economists have been allowed to amuse ourselves in this task. Since no practical consequences were to follow, nobody has felt moved to object to any particular table which anybody has thought fit to prepare. But we may be very sure that just as soon as it appears that a table of general prices is to have important financial consequences for men in various relations just so soon a multitude of influences, some shrewdly intelligent and some not, will be set at work to shape the table this way and that. For this reason, and other reasons connected with it, the administration of the new policy will not be the simple matter of clerical routine which Professor Fisher assumes it to be.

As I have already taken my full time, or more, I cannot even mention some other practical objections to the interesting scheme. I can only say in the briefest of general terms that, in the commonly contrasted meanings of the terms, the scheme is based upon theories quite sound but there are practical difficulties in the way of its realization which are so great that it is not to be taken seriously.

O. M. W. SPRAGUE: I agree with Professor Whitaker that there is no exact relationship between a given seigniorage charge and changes in the level of prices; but on that account I am unable to follow him in his general acceptance of Professor Fisher's plan. By means of successive additions to the seigniorage, no doubt the

level of prices could be kept from advancing upward indefinitely. Gold mining would become less and less profitable and the stock of gold coin in the world would increase less rapidly than at present. The numerous influences causing changes in price levels over short periods of time would not, however, be removed and they would be offset to an unpredictable but probably very slight extent. To offset immediately and automatically such price oscillations seems to be Professor Fisher's primary purpose. If this will not be accomplished under his plan, it is clearly unnecessarily complicated, with its frequent succession of seigniorage changes. A contraction in current gold production could be brought about far more simply and directly and in a way which would be entirely adequate to take care of long-continued price tendencies. An international agreement, under which a tax of 5 per cent would be imposed upon all gold brought to any mint for coinage, would make gold production less profitable. If this tax should prove insufficient, it would be a simple matter to raise it to 10 per cent or whatever rate should prove necessary for the purpose in view. A plan of this sort might be expected to appeal to statesmen in many countries, because it would bring in a moderate amount of revenue.

B. M. Anderson, Jr.: I should like to take up three or four unrelated points which have been suggested by the discussion so far. First I wish to challenge Professor Willard Fisher's contention that neither monopoly nor extravagance has anything to do with higher prices. His argument is, in brief, that if we pay more for a monopolized article we have less to pay for other articles, and so the price level remains unchanged. And he offers a similar argument in the case of extravagance. Now qualitatively he is doubtless correct. There is a tendency in the direction he indicates. But quantitatively there is no tendency in the direction of lower prices which is as strong as the tendency toward higher prices caused by monopoly or extravagance. The price level is concerned with *average* price per *unit* of goods, not with the aggregate sums paid for total stocks of goods. The monopolist gets more per unit, but does not get proportionately more in the aggregate. Rather, he sells a smaller amount of goods. Monopoly means a lessened social output, as well as higher unit prices for monopolists. And a smaller aggregate of goods, other things equal, will be sold on a higher price level. Similarly, extravagance means less saving, which means less additions to capi-

tal, or even a decrease in capital, which means a smaller volume of production, which means higher prices. The problem of rising prices is by no means exclusively a monetary problem. A price is a ratio between two values, the value of money not only, but also the value of a commodity.

Because I am *not* a quantity theorist, I am disposed to believe that Professor Irving Fisher's plan of stabilizing the dollar might be feasible. If he put it on a quantity theory basis, and tried to raise the value of the dollar by charging a real seigniorage, and so checking the increase in the number of dollars, I should be very sceptical. But his plan is not a real seigniorage plan. The coined dollar is *inter*convertible with the gold bullion, and you can always get your bullion back. I believe that by putting more bullion behind the coin you can *ipso facto* raise the value of the dollar, and consequently lower the level of prices. But I do not see how, on the basis of the quantity theory, you could be sure of getting any definite result by Professor Fisher's plan. Because to reduce the price level, on that theory, to any given point, you must *first* reduce the number of dollars by a given number. How much, if at all, would a new ratio between coin and bullion reduce the number of dollars? Men, knowing they could get the bullion back on demand, might continue to coin almost as much as before. Of course a given amount of new bullion would make slightly less dollars. If the value of money were not directly changed by the new ratio, as much money would be needed as before to exchange a given value in goods. There would be some increase in the demand for gold in the arts, but just how elastic the arts demand for gold is we do not know. So far as the quantity theory can assert, the new equilibrium between arts use and money use of gold might be reached long before the money supply had been reduced enough to change the price level to the point desired. Or, if the arts demand is very elastic, too many dollars might be drawn off. We have neither statistical nor deductive laws as to the degree of elasticity in the demand for gold in the arts.

Two difficulties present themselves in connection with Professor Fisher's plan: one, already mentioned by Professor Fisher himself, is that it will not provide for a continued appreciation of gold, if that should come about again; the second is that the whole burden of the depreciation of gold will fall, under his plan, on the government. Whoever holds a depreciating commodity

loses thereby. Professor Fisher does not stop the depreciation of gold; he simply shifts the burden. There is a scheme—not original with me—which would, I think, obviate both of these difficulties, and gain all that Professor Fisher is seeking. And since our discussion is probably one of academic possibilities anyhow, I shall mention it. Why might not there be an international agreement to take over the gold mines of the world, monopolize the output, and so control the value of gold much as the private monopoly of diamonds is doing? This would provide for both depreciation and appreciation. And, unless it were unlike most monopolies, it would be profitable rather than a burden to the governments that went into it. I do not speak with great certainty, but my impression is that England and the United States alone have enough gold mines within their territories to put the plan into effect. Possibly Russia might have to come in.

One further point of a theoretical nature. Professor Fisher says that the dollar is not a unit of value, but merely a unit of weight: so many grains of gold. He holds that to get a unit of value you must turn to a composite unit of commodities. But this, I would suggest, is subject to the same criticism. It is also a bundle of physical units, defined as so many pounds, yards, and gallons. Its definition would have to be in terms other than value. He will have to dig deeper to find a unit of value. I would hold that either is a unit of value, that the unit of value is anything which you arbitrarily choose, which possesses value, just as the unit of length is anything possessing length which convention selects. By value I mean an intensive quality, that is, a positive quantity, and not a mere ratio of exchange. And I do not know what "unit of value" might mean anyhow if value be, as Professor Fisher seems to conceive it, a ratio of exchange.

R. R. Bowker: One great fact seems to stand out from discussion such as this, that the world is growing richer both in total product and per capita. It is not lowered production, but unsatisfactory distribution, that is in question. It is not the "bloated bondholder" who gets the surplus, for we have just been shown that the price and return of bonds taken together have not kept pace with the normal rate of interest or normal advance in values. At the other end of the scale, the wage earner has in some trades benefited, and in other trades not benefited adequately, by an increase in wages; and this does not depend upon trades union con-

ditions, because there has been notably an increase in the wages of domestic servants, who are not organized. I have myself, as a working economist, practical touch in executive relations with businesses of distinct kinds, one in publishing and printing, another in manufacturing and farming interests, and a third in manufacturing and engineering interests; and I find it difficult to make any generalizations as to increase in wages. In printing and publishing, the wages of type setters have largely increased, but this has been offset by the development of linotype and like machinery; the price of paper has lowered rather than increased; and books as well as newspapers have not been increased in price, though a larger margin of profit has come from the larger sale of books since the international copyright act was passed twenty years ago, and the circulation of newspapers has enormously increased. The real pinch has come upon those of the middle class, under salary, whose incomes have increased slightly or not at all, and who must face the higher cost of living without compensating return. I have in mind the injustice to an employee of my own, who for years earned $2000 where he should have earned $3000, but where his salary could not be increased in proportion with others without abolishing the margin of profit and practically putting a stop to the business. Now, it is largely because of the change in the purchasing value of the dollar that such injustice exists. In fact, the whole statistical question hinges on the lack of an absolute standard, and the difficulty that it is not easy to find such a standard should not prevent our seeking one. We measure from sea level, because with one coast receding and another lifting there is no standard on land, and in the sea itself we have the ebb and flow of the tide. We therefore have to find a standard in mean sea level, which does not exist, but which nevertheless gives a practically constant datum in reckoning heights. Measure of length, even as determined by the wave length of light, has similar difficulties. It is most of all important in economics and practical business that there should be found some standard of value which is stable, and from which can be measured the ups and downs of prices to emphasize the obligation under which we should all feel for just such work as that illustrated in the paper on which this discussion is based.

E. W. Kemmerer: Professor Fisher's plan is an ingenious one, and is well worthy of careful consideration.

The most serious objection to it, I believe, is one that has been

touched upon by several previous speakers. It is that its adoption would demoralize the international exchanges. The plan would drive a wedge, as it were, between the gold points. Gold would not be imported to any extent until the government's mint price were effective and exchange had declined below that price by sufficient to pay shipping expenses. Gold would not be exported to any extent until the redemption price had become effective and exchange had risen above that price by sufficient to pay shipping expenses on gold exports. Every substantial change in the size of the bullion dollar would cause a great disturbance to the foreign exchanges. If these changes were anticipated, as they doubtless would be, they would cause heavy speculation for a rise or fall in exchange, with resulting influences upon foreign money markets and the international security market. This speculation would assume the form of forward contracts for the purchase and sale of exchange, a form of speculation that would require comparatively small amounts of ready funds on the part of large speculating interests. Arbitrage transactions are today carried on for very slight differences in exchange, as small sometimes as 1/32 or even 1/64 of one per cent. With the prospect of a rapidly and continually rising bullion dollar, which would probably frequently confront speculators, I should expect excessive speculation in the exchanges, somewhat similar to that which took place in the Straits Settlements in the early part of 1906 when they were "raising" their dollar.

Exporters and importers working on small margins of profit frequently need to fix their exchange contracts for many months in advance. I have known it in an extreme case to be fixed as much as two years in advance. Professor Fisher's plan, if really adequate to meet gold depreciation, would bring in some years almost as much uncertainty in long-time forward exchange contracts as exists in the gold exchanges in silver standard countries. This uncertainty would be demoralizing to legitimate foreign trade.

Of course an international agreement to adopt the Fisher scheme would meet this difficulty. Considering, however, the world's experience in connection with the far simpler proposition to secure an international agreement for bimetallism, I fear that the hope of securing a comprehensive international agreement on this scheme is visionary.

One other point I want to mention in closing. It is that the essential features of the scheme for stabilizing the unit of value by a variable seigniorage charge were proposed in England about

twenty years ago. A proposition was made before the Herschell Commission to stabilize the gold value of the Indian rupee by means of a variable seigniorage on silver (section 139); and at about the same time Aneurin Williams,[1] proposed to remedy the evils of an appreciating and fluctuating unit of value in England by varying the seigniorage charge on gold in accordance with the movement of price index numbers. The scheme is described in the *Economic Journal* for June, 1892, under the caption "A Fixed Value of Bullion Standard." A later article by Robert Griffen in the same volume of the *Economic Journal* (p. 462) criticizes the scheme—some of the criticisms being the same as those advanced here today.

Professor Fisher, replying to objections: It is difficult in the space of a few minutes to answer fully the various objections which have been raised. I quite agree with Commissioner Neill that before any such plan as I have proposed can be actually enacted we need "much more information." My hope is that it may have a hearing before the proposed International Conference on the High Cost of Living. While it is probably too much to hope that it will actually be endorsed by such a conference, and afterward actually adopted by the nations of the world, it is not impossible that its discussion may lead to a general agreement as to the desirability and feasibility of stabilizing the dollar.

I am sure I am under no illusions as to the possibility of the early adoption of any plan to standardize the dollar. This may require centuries, but I hope that the present generation of economists may, at any rate, lay the foundations by threshing the subject out.

The objections which have been raised can all be fully answered and most of them, such as those raised by Commissioner Neill, are due to a lack of knowledge of what the plan contemplates. I think the main objection Commissioner Neill suggests—that those who make up the index numbers would be very unpopular because they affect the burden of debts—is wholly imaginary. There would be some ground for this objection if the proposal were to adopt the old "tabular standard" by correcting money payments

[1] The article by Aneurin Williams was not mentioned at the Boston meeting. The writer discovered it a few days after the meeting, and because of its important bearing on the subject, has taken the liberty to insert this reference to it in his remarks. E. W. K.

through the addition to or subtraction from the debt of a certain number of dollars. Under these circumstances the extra dollars paid or the dollars from which the debtors were excused would stand out definitely in the public mind and would be a subject for debate and possible discontent, but when the tabular standard is merged in the actual money of the country the ordinary debtor and creditor would be as unaware of how his interests had been affected as he is now unaware of how his interests are affected by gold depreciation. It would still be true that to the ordinary man "a dollar is a dollar."

The contrast between the complaints which might arise under the ordinary tabular standard and under the proposed plan is the contrast between complaints under direct and under indirect taxations. The ordinary man feels and complains of direct taxation, but even the economist cannot raise him from his lethargy enough to make him complain against the outrages of indirect taxation. Even the "Chamber of Horrors" in New York, designed to show how the tariff taxes the consumer, made comparatively little impression; and it has required several generations to bring the American consumer up to the point of protesting against a high tariff. Moreover, even this protest is largely based on the recent general rise in the cost of living mistakenly attributed to the tariff as the chief cause.

The truth is that if the monetary system which I have proposed were once adopted there would be very little attention paid to what "might have been" if some other plan or index number had been in use. Few besides the jeweler and the miner would be vitally interested in the changes in the government prices. An actual illustration is found in the fact that the average Philippino or the average inhabitant of India has had no real conception of the vital changes which have been wrought in the purchasing power of his money by the adoption of the "gold exchange standard" if indeed he ever heard of it, and no discontent has come from the contrast between what his purchasing power is and what it would have been, had the silver standard been retained. In fact we do not need to seek so far for an illustration. As I have hinted, we may illustrate the point by the difficulty today in making the average man realize that the depreciation of gold has affected the interests of creditor and debtor. We economists may calculate this out and show by index numbers that the bondholder has not really been getting any interest but the ordinary man who believes

"a dollar is a dollar" takes little stock in the proposition and if he finds any fault at all with rising prices he vents his wrath not upon the gold mines or the expansion of deposit banking but upon the luckless trusts, the middlemen, the tariff, trade unions, etc.

The savings bank depositor during the last fifteen years has been defrauded of all his interest but he does not yet appreciate either this fact or its cause.

If, then, we cannot get the ordinary man today really excited over the fact that his monetary standard has affected him to the tune of some 50 per cent of his principal of fifteen years ago, it does not seem likely that he could get excited because some one tells him that the index number used in the "compensated dollar" plan robbed him of 5 or 10 per cent as compared with some other possible system.

Furthermore, we must remember that the inclusion or exclusion of any particular commodity in the index number would seldom have as much as 1 per cent influence in the total. It would doubtless be difficult at the outset to secure agreement on the best form of index number, but even this difficulty would be more a technical dispute among experts than a quarrel over debtor and creditor interests. The index number would of course be settled in advance of its use and it would be difficult for these classes to foresee where their interests lay. Both would be willing to let the experts decide whether or not, for instance, rye and leather should be in the index number; for in an index number of one hundred commodities the inclusion or exclusion of one or two commodities could scarcely ever affect the result by as much as 1 per cent, and even this effect could not be foreseen.

As to Professor Kemmerer's objection that the adoption of the plan by one nation would derange the international exchanges, I quite agree with all he says. For this reason I should not advocate the plan for one nation alone, but should advocate it only under international agreement.

One gentleman who does not believe in the quantity theory has asked how raising the weight of a virtual dollar would tend to contract the currency. I answer, first, that it would do so by at first diverting gold from the mint where it was confronted by a reduction in price into the arts or to countries where the price had not been changed, and, secondly, that the increase of weight, if sufficient, would encourage the redemption of money in bullion.

To take an extreme illustration, suppose the dollar were sud-

denly made a ton of gold. We can imagine that the holders of dollars so redeemable would rush to redeem. Jewelers would stock up in gold when they would get a ton for every dollar certificate or greenback in their possession. This would certainly contract the currency.

As to the objection that the plan would be extremely costly to the government, I may say that this is, curiously enough, the opposite of the objection which has often been raised, namely, that the plan would be so lucrative to the government as to be a constant temptation to coin the seigniorage. As a matter of fact, I do not think there is any truth in either objection. The objection that the plan would be costly goes on the assumption that it would be necessary to maintain a 100 per cent reserve. This, perhaps, is required so long as the paper which represents the gold is in the special legal form called "certificates," but it would be easy, of course, to substitute a different form of certificate or note entitling the owner of it not to 25.8 grains of gold for each dollar of paper, but to such an amount of gold as would be determined by the operation of the system, and not requiring that a 100 per cent reserve should be kept. It might be prudent to require at least a 50 per cent reserve to be kept. But it would require many generations before the 50,000,000 ounces of gold now in the Treasury would constitute less than 50 per cent reserve and so require replenishing. Until then there would be no cost to the United States.

Besides this, there is to be reckoned with the fact that whenever the government buys and then sells or sells and then buys gold, it makes a profit in either direction and this profit would add to its reserves.

Another consideration is this. As soon as the system is really adopted it would unavoidably be suggested, especially as soon as it became costly, that all gold coins in circulation, being mere tokens anyway, should be recalled and converted into paper, the gold being then added to the gold reserves. The use of gold coins is an extremely costly and uneconomic arrangement, and the only reason for not providing for their recall at the very beginning is not to run counter to the prejudices, especially in England, by which they are kept in existence.

Of course, we seldom get good things in this world without paying some price for them, but it seems to me that this would be a case of a bargin counter price, the result being inestimably precious, and the price being extremely low.

It has been objected that to increase the weight of the dollar 1 per cent would not necessarily offset exactly a 1 per cent rise in prices and that consequently if, during a series of years, prices had risen 50 per cent, this rise could not have been prevented by the system which I have proposed, which would, it is said, have necessarily implied an increase in the weight of the dollar of exactly 50 per cent. This objection is based on a misunderstanding. While it is true that I have suggested that a 1 per cent *deviation from par* should be the signal for a 1 per cent change in the weight of the dollar, this does not imply that a 1 per cent quarterly rise in prices would require a 1 per cent quarterly increase in the weight of the dollar, because it does not imply that a 1 per cent change in the weight of a dollar causes an exact change of 1 per cent in the general level of prices. This will be clear if we take an example. Let us assume that prices tend to rise 1 per cent every quarter and let us further assume that a change in the weight of the dollar of 1 per cent represses this upward movement of prices only by ½ per cent. We shall see that the system will require a quarterly change in the weight of the dollar not of 1 per cent but of nearly 2 per cent. If we consider the price level at first, as 100 per cent, at the end of the next quarter it will register 101 per cent. The excess above par of 1 per cent is now the signal for increasing the weight of the dollar by 1 per cent. This, according to our assumption, restrains prices by only ½ per cent, so that at the end of the next quarter the price level will be 100 ½ per cent plus the assumed quarterly increase of 1 per cent or 101 ½ per cent in all. It will now be observed that the signal for raising the weight of the dollar stands not at 1 per cent but at 1 ½ per cent. Accordingly the weight of the dollar being increased by this amount and repressing the price level by one half as much, that is, ¾ per cent, will result at the end of the next quarter in a price level of 100 ¾ plus the usual rise of 1 per cent, or 101 ¾ per cent. The signal now stands at 1 ¾ per cent and the application of such an increase in the weight of the dollar will, by the same reasoning, result at the end of the next quarter in an index number of 100 ⅞ per cent and so on indefinitely, the index number always being 100 plus a fraction of 1 per cent but never rising as high as 102, unless in some quarter a greater rise than 1 per cent should occur. The result is still clearer if we assume that the price level should at any time reach 102 per cent and that thereafter it should tend (except for the

effect of the compensated dollar) to rise 1 per cent quarterly. Since the price level stands at 102 per cent, the signal is for an increase in the weight of the dollar of 2 per cent. This, we suppose, would only repress the price level by 1 per cent, so that at the end of the next quarter it would stand at 101 per cent plus the usual 1 per cent rise, or 102 per cent as before. We should therefore now increase the weight of the dollar by 2 per cent again, and so on indefinitely, the result being to maintain the price level always at 102 per cent. Therefore, if, in a series of years, the price level would have risen without the operation of the system by 50 per cent, it is evident that the system would have secured an increase in the weight of the dollar of fully 100 per cent and would have kept the price level actually within 2 per cent of par.